Conclusions: Our findings indicate regular consumption of at least two serves of legumes a week is beneficial for reducing the risk of cardiovascular mortality in middle-aged Australian adults. This is consistent with studies examining legumes as part of a healthy diet.
Funding source(s): Grains & Legumes Nutrition Council.

FRUIT AND VEGETABLE INTAKE AND SKIN COLOUR AMONGST YOUNG AUSTRALIAN WOMEN: A CROSS-SECTIONAL STUDY

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Background/Aims: Higher fruit and vegetable intakes reduce the risk of obesity and some cancers. Fruit and vegetables contain carotenoids and evidence has shown that they are associated with skin colour, in particular skin yellowness. This study aimed to evaluate if there is an association between fruit and/or vegetable intake and skin colour in young Australian women.
Methods: Ninety-one Caucasian women [median and (IQR) age 22.1 (18.1-29.1) years, BMI 22.9 (18.5-31.9) kg/m^2] were recruited from the Hunter region. Fruit and vegetable serves were assessed by a validated food frequency questionnaire. Skin colour was measured on nine body locations (five of which were unexposed to sunlight) using a spectrophotometer and CIE L*a*b* tristimulus values recorded. Averages of overall, exposed and unexposed values of skin L*a*b* were calculated. Multiple linear regression was used to determine associations between fruit and vegetable serves and skin yellowness (b*) after adjusting for skin lightness (L*), supplement use, BMI, total energy intake and age.
Results: Average fruit and vegetable intakes were 2.0 ± 1.2 and 4.0 ± 1.9 servings/day. Higher fruit ($\beta = 0.83$, $p = 0.039$) and combined fruit and vegetable intake ($\beta = 0.72$, $p = 0.024$) were associated with increased overall b* values. Both higher fruit ($\beta = 1.1$, $p = 0.012$) and vegetable intakes ($\beta = 0.94$, $p = 0.017$) or combined ($\beta = 1.0$, $p = 0.004$) were associated with increased unexposed b*values.
Conclusions: Higher fruit intakes and or combined fruit and vegetable intakes are associated with overall skin colour yellowness. This could potentially be used as a biomarker for fruit and vegetable intake.
Funding source(s): Priority Research Centre for Physical Activity and Nutrition.

WHOLEGRAIN BARLEY β-GLUCAN REDUCED DIET INTAKE BUT DID NOT IMPROVE GLUCOSE TOLERANCE DESPITE INCREASING FERMENTATION IN RATS

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Background/Aims: We aimed to determine whether fermentation of barley β-glucan raises incretin hormone levels and improves glucose control independent of other grain components.
Methods: Male Sprague Dawley rats ($n = 30$) were randomly allocated to one of three dietary treatments for 2 wk. The LBG (0% β-glucan) and HBG (3% β-glucan) diets were isoenergetic and contained 25% wholemeal barley and similar levels of insoluble dietary fibre and available carbohydrate. A low-fibre basal diet was included for comparison. After 2 weeks on the diets, a venous blood sample was withdrawn to determine glucose, insulin and incretin levels and a glucose tolerance test was performed. The rats were then killed and caecal fermentation was assessed according to digesta weight, pH and SCFA pools. Data was analysed by one-way ANOVA and a Tukey's post-hoc test.
Results: Compared to basal and LBG diets, the HBG diet reduced food intake by 10% ($p < 0.05$) and increased caecal fermentation ($p < 0.005$). However, glucose tolerance and circulating levels of glucose, insulin, gastric-inhibitory peptide (GIP) and glucagon-like peptide-1 (GLP-1) were not different among the diet groups.
Conclusions: Wholegrain barley β-glucan suppressed feed intake and increased caecal fermentation but this was not sufficient to improve glucose control or insulin sensitivity.
Funding source: CSIRO Food and Nutrition Flagship.

THE EFFECT OF CEREAL FIBRE INTAKE ON POSTPRANDIAL BLOOD GLUCOSE RESPONSE

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Background/Aims: The aim of this study was to critically investigate existing literature on the effect of cereal fibre on postprandial blood glucose levels (BGLs), in a generally healthy population.
Methods: A systematic literature review using MEDLINE, SCOPUS, Web of Science and Informit-agriculture was conducted. Studies were excluded if they used pseudo cereal fibre, supplements, were conducted in animals or *in vitro*, or included subjects with acute disease or insulin-dependent diabetes. All studies were assessed for quality using validated tools.
Results: Of the 827 papers retrieved, 33 papers met the inclusion criteria. Eight five percent of the 33 papers reported intake of cereal fibre resulted in a reduction in post-prandial BGLs. The majority of the papers (69%) reported on soluble fibre, of which 65% reported BGL reductions. The effect of β-glucan and arabinoxylan on reduction in BGLs was highly consistent in high quality studies and accounted for most of the significant, favourable results in the body of evidence for cereal fibre. A consistent effect of 4 g β-glucan resulted in 20-40% statistically significant reductions in BGL. A 20% BGL reduction was reported with 6 g arabinoxylan. Studies on insoluble fibre and resistant starch have limited and inconsistent results.
Conclusions: There is sufficient evidence to recommend a dose of 4 g β-glucan or 6 g arabinoxylan for significant reductions in postprandial BGLs.
Funding sources(s): N/A.

CONSUMING HI-OLEIC PEANUTS FOR 12 WEEKS CAN ENHANCE CEREBRAL VASODILATOR RESPONSIVENESS AND COGNITIVE PERFORMANCE

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Background/Aims: Hi-oleic peanuts contain monounsaturated fat, arginine, fibre, folate, vitamin E, resveratrol and other polyphenols with demonstrated benefits for vascular function. This study aimed to investigate whether regular daily consumption of hi-oleic peanuts can influence vasodilator function in the cerebral arteries, thereby improving blood flow in brain regions associated with cognitive performance.
Methods: Sixty one healthy participants (31 male/32 female, mean ± SD age 65 ± 1 years, BMI 31 ± 1 kg/m^2) consumed hi-oleic peanuts (56-84 g/day) or an *ad libitum* nut free diet for 12 weeks, in a randomised cross-over design. Assessments were conducted at baseline and at the end of each 12-week intervention arm. Increases in blood flow in the left (L) and right (R) middle cerebral arteries were induced by CO_2 inhalation to measure cerebral vasodilator responsiveness (CVR) and cognitive tests were conducted to measure memory, processing speed and executive function. Repeated measures analysis controlling for baseline was used to compare the 2 groups.
Results: Compared with the control, hi-oleic peanuts demonstrated a significant 9 % improvement in LCVR ($p = 0.035$) and 6% improvement in RCVR ($p = 0.032$). Tests of verbal fluency and processing speed demonstrated a 12% ($p = 0.004$) and 3% ($p = = 0.005$) improvement. Other cognitive tasks demonstrated small non-significant improvements.
Conclusions: Hi-oleic peanut supplementation significantly improved vasodilator function in the cerebral arteries, possibly due to an increased intake of bioactive nutrients. The increased blood flow in brain regions mediating cognitive functions may account for accompanying improvements in cognitive performance.
Funding source(s): ARC, Peanut Company of Australia.